

ABSTRACT OF THE DISCLOSURE

A process for manufacturing a solid oxide fuel cell comprises, in one embodiment according to the invention: forming a plastic mass comprising a mixture of an electrolyte substance and an electrochemically active substance; extruding the plastic mass through a die to form an extruded tube; and sintering the extruded tube to form a tubular anode capable of supporting the solid oxide fuel cell. The process may further comprise, after sintering the extruded tube, layering an electrolyte onto the tubular anode; and, after layering the electrolyte, layering a cathode onto the electrolyte.

In a further related embodiment, the process further comprises co-extruding more than one anode layer to form the tubular anode. Each of the anode layers may comprise a ratio of electrochemically active substance to electrolyte substance, with such ratios being higher for layers that are layered further from a surface of the anode that contacts a fuel gas than for layers that are layered closer to the fuel gas.

Anode-supported tubular solid oxide fuel cells, which may be formed by such processes, are also disclosed. Additionally, electrode-supported oxygen pumps and oxygen sensors, and methods of manufacturing them, are disclosed.

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